(12) INTERNATIONAL A.L.CATION PUBLISHED UNDER THE PATENT (CONTRACTOR) TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 23 September 2004 (23.09.2004)

PCT

(10) International Publication Number WO 2004/080542 A1

(51) International Patent Classification⁷:

A62C 37/08

(21) International Application Number:

PCT/KR2004/000492

(22) International Filing Date: 10 March 2004 (10.03.2004)

(25) Filing Language:

Korean

(26) Publication Language:

English

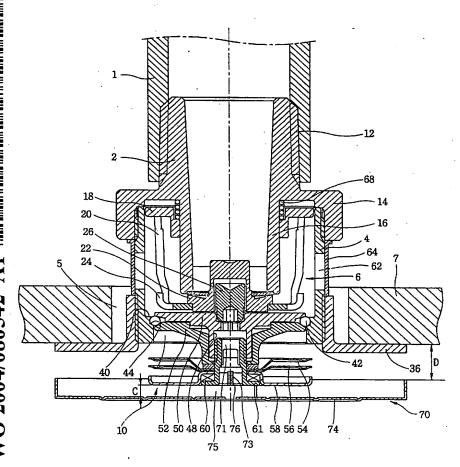
(71) Applicants (for all designated States except US):
PARADISE INDUSTRY CO. LTD. [KR/KR]; 65-2,
Chunui-Dong, Wonmi-Gu, Bucheon, Gyeonggi-Do

420-858 (KR). HATTORI, Tadashi [JP/JP]; Clover Heights Kinwada Beureru 607, 242-5, Gakuhara-Cho, Osaka 596-0822 (JP).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): SHIM, Dae-Min [KR/KR]; Hyundai Apt. 203-703, 654, Gaepo-Dong, Gangnam-Gu, Seoul 135-240 (KR).
- (74) Agent: PARK, Jang-Won; Jewoo Bldg. 5th Floor, 200, Nonhyun-Dong, Gangnam-Gu, Seoul 135-010 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: SPRINKLER HEAD



(57) Abstract: A sprinkler head comprises: a locking unit locked inside a second housing for maintaining a sealing state between a deflector and a first housing; a heat responding unit exposed to outside of a ceiling for releasing the locked state of the locking unit by reacting to fire when fire breaks out; and a head cover mounted at a lower side of the heat responding unit and transmitting heat to the heat responding unit after collecting heat at the time of a fire occurrence. According to this, a fine appearance of the sprinkler head is provided, and the head cover performs a heat collecting function at the time of a fire occurrence thus to have a fast reaction speed, thereby enhancing a function of the sprinkler head.

By Express Mail No. EV608568448US

WO 2004/080542 A1

WO 2004/080542 A1



- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD; TG).
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- with international search report



recruational application No. ..
PCT/KR2004/000492

| A. CLASSIFICATION | OF | SUBJECT | MATTER |
|-------------------|----|----------------|---------------|
|-------------------|----|----------------|---------------|

IPC7 A62C 37/08

By Express Mail No. EV608568448US

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 A62C 37/08

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Patents and application for since 1975

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)
New Patents & Utility Search system (KIPO)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | JP 08131575 A (NOHMI BOSAI LTD) 28 May 1996 | 1 - 19 |
| | See the whole document | |
| Α | US 6082463 A (THE RELIABLE AUTOMATIC SPRINKLER CO.) 04 July 2000 | 1 - 19 |
| | See the whole document | |
| Α | JP 11161852 A (HOCHIKI CORP) 19 July 2001 | 1 - 19 |
| | See the whole document | |
| Α | JP 07231949 A (SENJU SPRINKLER KK) 05 September 1995 | 1 - 19 |
| | See the whole document | |
| | | |

| | Further | documents | are | listed | in | the | continuation | of l | Box | C. |
|--|---------|-----------|-----|--------|----|-----|--------------|------|-----|----|
|--|---------|-----------|-----|--------|----|-----|--------------|------|-----|----|

See patent family annex.

- Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

15 JULY 2004 (15.07.2004)

Date of mailing of the international search report 16 JULY 2004 (16.07.2004)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

PARK, Jong Man

Telephone No. 82-42-481-5530

